

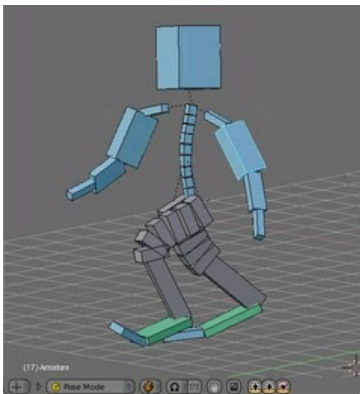
Blender 2.40



Blender has had another long development cycle resulting in a release packed with features and improvements. The major additions this release are the **Animation Rewrite**, the added **Fluid Dynamics** system, the addition of **Particle Based Hair**, and the **Modifier Stack**.

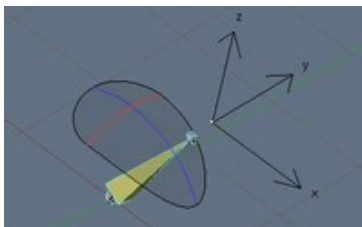
Animation Rewrite Overview

The vastly improved animation tools have taken animation from frustration to inspiration. Improvements include fast and easy rigging with added bone types, new display methods, easier and faster skin weighting methods, improved and easier to use deformation methods, completely rewritten Inverse Kinematics system, easier and faster posing, added IPO curves methods, and more robust actions and NLA tools.



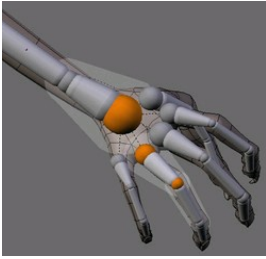
Rigging

Rigging is now much easier with mirrored extrusion and auto-naming, additional selection methods such as loop and border select, and added bone types (hinge, bbones), new display methods



Inverse Kinematics

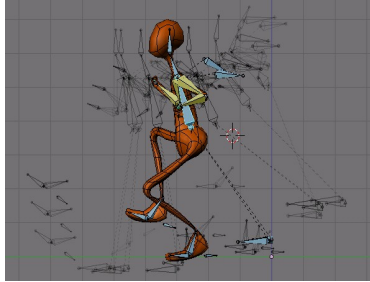
Targetless IK, Auto IK, Improved constraints, Degrees of Freedom, Floor Constraint



Skin Weighting

Skin weights can now be automatically created from envelope based definitions. You can then further refine them by baking them to vertex groups and fine tune them using weight painting which can be automatically mirrored across a x axis symmetrical object.

Need

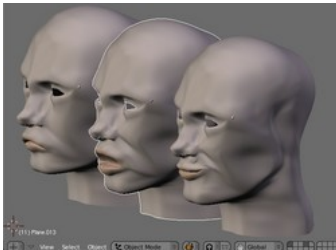


Display Methods

There are a number of additional display modes for bones – Xray which always draws the bone armature in front of the mesh object. Ghosting which shows the armature positions in both the current and future frames, New Draw modes, Xray mode for drawing, armature ghosting and showing the path of a bone in the 3d view.

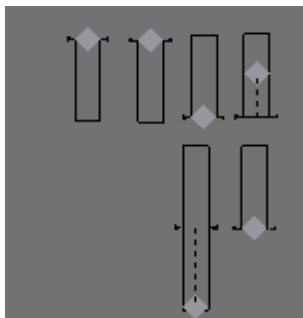
Posing

With the completely revised Inverse Kinematics system you can now quickly and easily pose your character



Deformation Methods

Shape keys (morph targets) can now be quickly and intuitively created. All deformation tools such as lattice deformations, curve deform, and hooks can now be assigned to work on only vertex groups

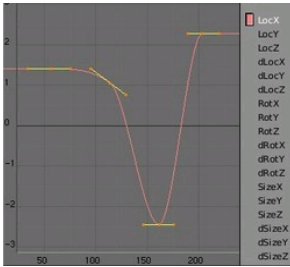


Drivers

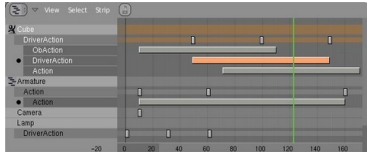
Drivers allow you to drive shape keys with things like the rotation angle of a bone, or a slider.

IPO Curves

New handle and interpolation types have been added to interpolation



(IPO) curves. Including Auto Handles which prevent undesired overshoot.

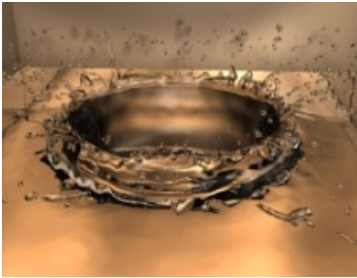


Actions and NLA

Text

Particle and Simulation Overview

We have had a number of large improvements including the addition of a fluid simulator, particle based hair with particle guides, improved softbody dynamics and hard body dynamics baking



Credits: Nils T

Fluid Dynamics

With the new fluid dynamics system a whole new meaning is added to splash screen. Fluids can collide with static objects and have multiple fluid streams interact.



Particle Based Hair

You can now achieve beautiful and realistic hair with blender. Standard particle tools such as fields can be used for styling, as well as new particle tools such as particle guides. An anisotropic shader has been added for realistic shading.

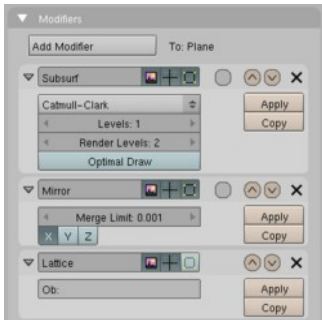
Soft Body Dynamics

Soft bodies can now handle more complex collision cases



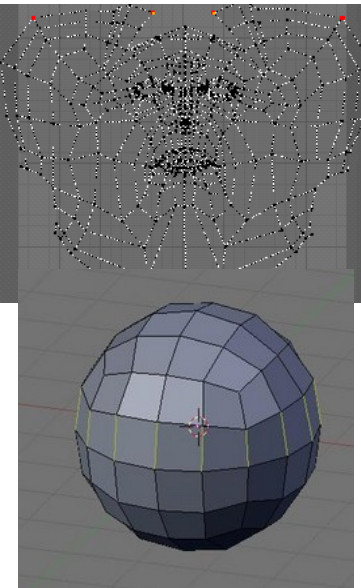
Hard Body Dynamics

You can now more directly bake hard body dynamics simulations to IPO curve animations



Modifier Stack

The modifier stack allows you to quickly apply, remove and change the order of modifier tools. Allowing you to visualize and interactively change complex operations on your mesh. Of particular interest are the mirror modifier, boolean modifier, and many of the animation tools becoming modifiers such as hooks, armatures and lattice deformations.



UV Tools and Image editing

The exciting news for UVs is the addition of 'Live LSCM' where the LSCM updates as you move your pins. Also a number of nice features have been added to the image editing such as a clone brush, and smudging tool.

Mesh Editing Overview

There have been a number of nice mesh editing tools added including better subdivize support, edge loop selection, edge loop deletion, edge sliding, a ripping tool, much improved text creation and editing, and high quality boolean editing.

Transforms

Text

Python API and Scripts

We have had a number of useful modules added including



Bug Fixes

There have been a number of bug fixes (how'd those get in there?)

Important notes

Backwards compatibility

Yafray

Development notes

- text

Hidden stuff

- text

Credits

People who have contributed code for this release:

Alexander Ewering (Bug hunting & fixes)

Alfredo de Greef (Yafray export)

Andrea Weikert (Bug fixes)

Brecht van Lommel (UV editing)

Campbell Barton (Mesh stats drawing, Python fixes)

Chris Burt (Textures, bug fixes)

Chris Want (Makefiles, bug fixes, Irix, Tuhopuu sync)

Daniel Dunbar (CCG Subsurf, Mesh drawing recode)
DJCapelis (Linux release)
Gergely Erdelyi: (Python fixes)
Hans Lambermont (FreeBSD release)
Jean-Luc Peurriere (Dependency graph, code cleaning, OSX)
Jens Ole Wund (Soft Body, fields)
Joseph Gilbert (Python API)
Jiri Hnidek (Meta Objects, TimeLine)
John Aughey (Turn table)
Johnny Matthews (Mesh tools, Python)
Joilnen Leite (Python API)
Jorge Bernal and Jonathan Merritt (WardIso & Minneart shaders)
Ken Hughes (Python API)
Kent Mein (Imbuf, Sun Solaris)
Kester Maddock (Game engine)
Matt Ebb (TimeLine, menus)
Martin Poirier (Transform recode, constraints)
Nathan Letwory (Scons, bug fixes)
Ricki Myers (Text editor)
Rob Haarsma (UI Texture font, Quicktime)
Simon Clitherow (bug fixes, Windows)
Stefan Gartner (Linux PPC)
Stephen Swaney (Python API)
Tom Musgrove (Extrude menu)
Ton Roosendaal (Render, Soft Body, TimeLine, bug fixes)
Willian Padovani Germano (Python API)

And of course thanks to those who helped with demos, testing, docs, bug hunting, webpages, bug reports, testing builds, and so on... great work all!